<u>**REMARKS**</u>

Claims 1-9 are now pending in the application, Claims 10-49 having been cancelled. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

<u>**REJECTION UNDER 35 U.S.C. § 102**</u>

Claims 1-9 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Morse *et al.* (U.S. Pat. No. 6,960,403). This rejection is respectfully traversed.

Applicants previously noted that Morse *et al.* fails to disclose (1) "a flow path . . . established from said first manifold through said orifice <u>over said active element</u> to said second manifold and (2) "a plurality of spacer disposed in said first manifold." In response, the Examiner acknowledged that Applicants had correctly pointed out the relative position of the first and second manifold but noted that "the generic manifold in the claim is interpreted as any location alone [sic, along] the structure of the manifold." In support of his position, the Examiner cites a portion of the Summary of the Invention in Moore et al. which describes the structure as follows:

> "an anode manifold containing (a) a fourth layer fuel inlet communicating with the fuel feedthrough, (b) a porous membrane, (c) a fourth layer fuel outlet, **wherein the fourth layer fuel inlet and outlet are configured <u>such that fuel flows horizontally</u>** through the fourth layer fuel inlet, then vertically up through the porous membrane, **wherein whatever portion of the fuel that does not flow vertically through the porous membrane <u>continues to flow horizontally</u> through the fourth layer fuel outlet**." Moore *et al.*, col. 1, lines 39-48 (emphasis added).

This fuel cell structure disclosed by Moore et al. is further described at col 5, line 45 – col. 6, line 3 and illustrated at FIGS 3A and 3D-F. See, annotated figures reproduced below. Specifically, Moore et al. teach the use of inlet channels 336 and

outlet channels 338 formed in microfluidic layer 306 (i.e., in a single plane) for transporting reactant gas from the inlet 330 to the outlet 332. Slits 341 formed in anode manifold layer 308 define anode manifold 340 that overlaps the channels 336, 338 to provide a flow field for reactant gas. Optionally, a porous membrane layer 310 having a porous area 339 overlying the slits 341 may serve as an extension of the anode manifold 340. Thus, the fuel cell structure taught by Moore et al. provides a flow field through an anode manifold 340 formed by a series of slits 341 traversing co-planar inlet channels 336 and outlet channels 338. As such the pressure drop from the inlet to the outlet across the flow field is relatively high due to the channels 336, 338 and slits 341. Moreover, the Examiner's broad interpretation of "manifold" does not appear to be supported by the teachings of Moore et al.

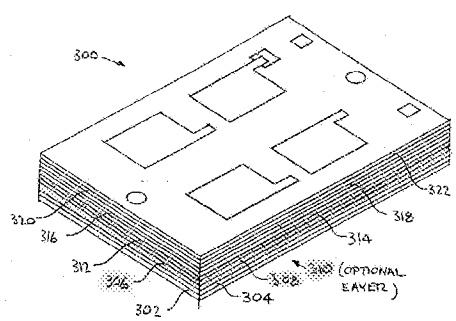
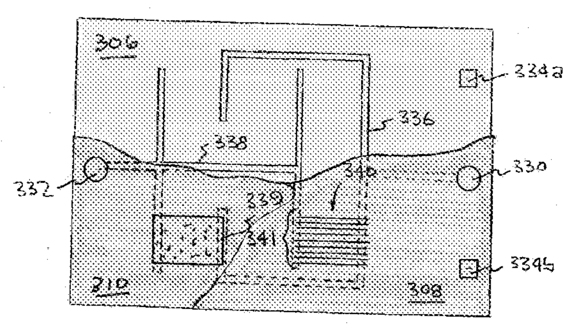


FIG. 3A



In contrast, the fuel cell structure recited by claim 1, define a flow field having an ultra-short flow path from the inlet (the second manifold) to the outlet (the first manifold) define by the orifice extending through the plurality of spacers results in a significantly reduced pressure drop. Since the planar manifolds function as a plenum for the reactant gas on the inlet and outlet, the only significant pressure occurs across the short orifice formed through the spacer. The spacer is located within the first manifold such that reactant gases can flow from the second manifold to the active element without leaking into the first manifold. In this way, the three layers – the active element, the first manifold and the second manifold – are fluidly coupled without mixing reactant gas therebetween.

With specific reference to claim 1, Applicant submits that Moore et al. fails to teach or suggest "a first planar manifold...[and] a second planar manifold ... in a subjacent relationship to said first planar manifold" and "a plurality of spacers disposed within said first planar manifold, ... each having an orifice formed therethrough [to establish] an ultra-short flow path ... from said second planar manifold through said orifice over said active element to said first planar manifold." Applicants submit that Morse et al. fails to disclose each and every limitation set forth in the claims of the present application. Applicants further reiterate that the flow field design includes an intake manifold and an exhaust manifold which are configured in stacked planes. A relatively short passage extends from the intake manifold to the exhaust manifold and terminates at an active element such that fluid communication is provided from the intake manifold through the passage and the active element to the exhaust manifold. See application, page 5, paragraph 12. Clearly, Morse et al. fail to disclose or suggest

this unique flow field design. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejections of Claims 1-9.

CANCELLED CLAIMS

Applicants have cancelled claims 10-49 which were previously withdrawn from consideration. As such, only claims 1-9 remain pending in the present application.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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